REMARKS:

Claims 1-26 are pending in the present application.

Claim Objections

In the Office Action dated October 5, 2009, the Examiner initially objected to the claims of the present application for including improper indentation. In particular, the Examiner commented that each element or step of the claims should be separated by a line indentation. By the present amendments, claim 1 has now been amended to incorporate appropriate indentations into that claim such that claim 1, as amended, includes various elements or steps that are separated by a line indentation. Accordingly, the claims of the present application, as amended, are now believed to be in suitable form, and Applicant respectfully requests that the Examiner's objection be withdrawn.

35 U.S.C. §103

In the Office Action dated October 5, 2009, the Examiner rejected claims 1-7, 9-20, and 22-25 pursuant to 35 U.S.C. §103(a) as being unpatentable over the combined teachings of U.S. Patent No. 6,684,264 ("Choi") and U.S. Patent No. 6,240,410 ("Wical"). Additionally, the Examiner rejected claims 8 and 21 pursuant to 35 U.S.C. §103(a) as being unpatentable over the combined teachings of Choi, Wical, and U.S. Patent No. 4,674,053 ("Bannai"). In rejecting the claims, although the Examiner acknowledged that Choi does not disclose a hierarchical navigation process, the Examiner asserted that Wical describes a hierarchical navigation surface that is presented to a user in layers, and that a combination of Choi and Wical could be used to

render obvious the claims of the present application. See Office Action at pages 6-8. Applicant respectfully disagrees.

Before discussing these rejections and the specific claims of the present application, however, Applicant believes it to be beneficial to review the features and advantages of the present invention to place the discussion of the claims and rejection in the proper context.

Prior to the present invention, and as described in the present application and in European Patent No. 0 573 912, an injection molding machine commonly included a basic knowledge or data set that covered the basic rules for the operation of the machine and was recorded in a data processing unit. The machine also detected the machine configuration and machine environment, storing such information in the data processing unit. On account of this information, the data processing unit would calculate, as soon as the operator selected a specific input, which additional input possibilities made sense. Based on such calculations, the data processing unit would offer only those additional input possibilities which fit to the existing operator input. Nevertheless, the operator would still have to input the creation of the interactive operating sequence using conventional keyboards, which meant that, in spite of the presentation of a selected choice of input possibilities, the operator would still have to be trained to know which input fields of the keyboard have to be actuated for an input.

In the accordance with the present invention, the data processing unit also presents visualization of a selected choice of input possibilities to the operator, along with a selected choice of actuating fields, which allows the operator to add additional parts of the operating sequence in a compatible manner into existing parts of the operating sequence. These input possibilities are dynamic and are altered each time an input is made, such that, as the creation of

the operating sequence progresses, the input possibilities for the operator become clearer and clearer. The present invention also provides the additional advantage that the operator can see on a screen (of the operator interface) not only the sequence of the injection molding process, but also how the several steps in the sequence are hierarchically related. Even when viewing the different hierarchical levels, the operator can still see the alternative possibilities such that, on each hierarchical level, the operator can see where the operator is operating or giving input to the data processing unit, and can also see which optional alternatives he could have selected as a choice of input possibilities based on the calculations of the data processing unit.

Turning now to the prior art references cited against the claims of the present application, Choi describes an apparatus and method for controlling a molding machine that includes a compact human machine interface to improve the ease of operator maneuvering. However, Choi does not teach or suggest the display of a selected choice of input possibilities with a graphical user interface (GUI), as the Examiner has asserted. There is no teaching or suggestion in Choi that a data processing unit can or should be used to calculate compatible amendments to an operating sequence and, as such, there is no simply indication in Choi that a data set can be used to provide a selected choice of input possibilities.

Choi discloses that, on the control panel of its apparatus, a dedicated pushbutton on each column can be used to display all of the items of the function groups adjacent to the remaining pushbuttons. See column 9, lines 40-43. Thereafter, Choi further discloses that group selections for certain functions are possible and that user configuration groups can be stored. See column 9, line 62 to column 10, line 14. However, in Choi, an operator is only provided with a selection that relates to the provided equipment and the available machine function. Such selections are

not checked for their compatibility to the already existing operating sequence and, indeed, Choi provides no teaching or suggestion as to whether or how a basic selection could be compatibly added to the existing operating sequence. For example, using the apparatus and method of Choi, it would be possible for an operator to choose to open a mold during a plasticizing step, as the machine elements and functions would be available selections and because there is no examination done in Choi as to whether these steps would make sense in the operating sequence. In short, in Choi, even incompatible steps could be inputted by the operator.

Additionally, Choi has a fixed keyboard in that the pushbuttons are not images displayed on the screen, but rather are physical pushbuttons arrayed around the screen. Thus, the visualization does not vary as regards the orientation to the pushbuttons, and it would not be possible to provide a logical orientation on the screen, as long as these pushbuttons are used.

Turning now to Wical, Wical describes a virtual bookshelf system that allows a user to browse and locate information associated with a plurality of documents. In this regard, Wical discloses that a hierarchical system may be used to classify documents; however, in Wical, only one pathway is shown. Wical does not provide a means by which a user can view a plurality of navigation levels that are associated with one another in a tree-like arrangement. Instead, in Wical, a user can go to the top of a screen to find other literature, but once the user makes a specific selection, the user can not see what alternatives would have been possible in the upper levels. For example, in Figure 4a of Wical, once a user selects the field of "electronics" and the sub-field of "computer industry," it is not possible for the user to still visualize the previous shown alternatives to fields of "electronics" or "computer industry."

Referring now to the claims of the present application, independent claim 1 recites a

method for the interactive control of a plastics material injection molding machine in which an operating sequence is recorded in a data processing unit such that, by using the data set, (i) "the operator is provided on a surface with visualization of a selected choice of input possibilities…for additional parts of the operating sequences that can be added in a compatible manner into the existing parts of the operating sequence…;" (ii) "the input unit makes available to the operator on the surface a selected choice of actuating fields corresponding to the additional parts of the operating sequence…;" and (iii)"wherein the navigation surface comprising at least three lines or three columns of actuating and input fields is hierarchical from line to line or column to column and is represented on the surface with a plurality of navigation levels associated with one another."

Similarly, independent claim 15 recites an apparatus for the interactive control of a plastics material injection molding machine in which a data set is also used to offer and display to the operator "a selected choice…of possible input possibilities, based on machine configuration and machine environment, for additional parts of the operating sequence that can be added in a compatible manner into existing parts of the operating sequence." Claim 15 also recites that the "selected choice of input possibilities that are compatible to the existing parts of an operating sequence…are displayed on a navigation surface in a hierarchical form that includes a plurality of navigation levels associated with one another."

In short, independent claims 1 and 15 both include limitations with respect to providing an operator with a selected choice of compatible input possibilities and a selected choice of actuating fields, and then displaying such information on a navigation surface in a hierarchical form such that a plurality of navigation levels are associated with one another.

Of course, to establish a *prima facie* case of obviousness under §103, the cited reference or combination of references must teach or suggest each and every claim limitation found in a claim against which the reference or combination of references is cited. See, e.g., MPEP §§ 706.02(j) and 2142. As described above, Choi does not include any teaching or suggestion with regard to using a data set to provide an operator with a selected choice of input possibilities for additional parts of the operating sequence that can be added in a compatible manner into existing parts of the operating sequence, much less teach or suggest that the selected choice of input possibilities can be arranged in a hierarchical menu to allow an operator to see the alternatives to the prior choices. Instead, in Choi, the available selections are not checked for their compatibility to the already existing operating sequence, and a user is able to input even incompatible steps into the operating sequence.

Similarly, Wical also includes no teaching or suggestion with regard to using a data set to provide an operator with a selected choice of input possibilities. As described above, Wical is only directed to a virtual bookshelf system that uses a hierarchical system that is vastly different from the one described and claimed in the present application. Indeed, in the hierarchical system described in Wical, a user is not able to see alternatives to the choices he has already made.

Applicant points out again that independent claims 1 and 15 each include limitations with regard to providing an operator with a selected choice of input possibilities that are compatible with an existing operating sequence, along with a selected choice of actuating fields, and then displaying those input possibilities in a hierarchical manner such that the navigation surface displays a plurality of navigation levels associated with one another. Accordingly, even if Choi

could be properly combined with Wical[1], the combined teachings would still fail to teach or suggest each and every limitation of independent claims 1 and 15, as is required to establish a *prima facie* case of obviousness pursuant to 35 U.S.C. §103(a) and MPEP §§ 706.02(j) and 2142. Thus, Applicant respectfully submits that claims 1 and 15 are not rendered obvious by the cited prior art references and are in condition for allowance.

Claims 2-14 and 16-25 depend from these independent claims, and thus are also believed to be allowable in view of the remarks presented above with respect to independent claims 1 and 15.

Additionally, claim 26 has been added to the present application. Claim 26 includes limitations identical to those of claim 1, and further clarifies that when the operator's input is made, even at a hierarchically higher level, alternative possibilities are visualized as a selected choice based on the operator's input. As such, claim 26 is also believed to be allowable for at least the reasons presented above with respect to independent claims 1 and 15.

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[1] Applicant also points out that to establish a *prima facie* case of obviousness based on a combination of the teachings of one or more prior art references, there must also be some reason for the combination of the teachings of the prior art references, whereby a person of ordinary skill in the art would make the substitutions or modifications required to achieve the claimed invention. See KSR International Co. v. Teleflex Inc., 550 U.S. 398, 82 USPQ2d 1385 (2007) ("KSR"). In this regard, and as pointed out in the "Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in KSR International Co. v. Teleflex Inc." that have been promulgated by the U.S. Patent and Trademark Office, the Court reiterated that "there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." KSR, 550 U.S. at 418, 82 USPQ2d at 1396. For purposes of this response only, Applicant has assumed that the combination of prior art references is proper. However, Applicant questions whether there is a valid reasoning for one of ordinary skill in the art to combine the teachings of the cited references to achieve the claimed invention as, despite the Examiner's assertions to the contrary, Choi and Wical do not appear to be analogous art. Choi is directed to the operation of an injection molding machines, while Wical is directed to virtual bookshelf systems.

35 U.S.C. §101

In the Office Action dated October 5, 2009, the Examiner also rejected claims 15-25 pursuant to 35 U.S.C. §101 as being directed toward non-statutory subject matter. In particular, the Examiner asserted that the apparatus recited in claims 15-24 was merely computer software and that claim 25 was drawn to a form of energy.

As stated in 35 U.S.C. §101 and further explained in the "Interim Examination Instructions For Evaluating Subject Matter Eligibility Under 35 U.S.C. § 101" dated August 24, 2009, an invention must be directed toward a "process, machine, manufacture, or composition of matter" in order to qualify as patentable subject matter. Claims 15-25 recite a combination of elements that is appropriately characterized as a "machine." Although the claims include software-related elements, they nonetheless recite tangible limitations, including, for example, a navigation surface which displays possible input possibilities to an operator and allows for the data input by the operator.

Furthermore, with regard to the apparatus recited in claims 15-24, there is a constant interactive relationship not only between the operator and the injection molding machine, but also between the data processing unit and the injection molding machine. The injection molding machine is constantly checking which elements are present in the machine and which inputs are possible. As such, the data processing unit, on the one hand, receives information relating to specific measurements or configurations of the machine and, on the other hand, checks to determine whether a specific input was already given by the operator and whether or not the next input will be compatible with the machine. Further, the data processing unit then influences the visualization of not only the operating sequence, but also of the hierarchical levels of input

possibilities.

For example, if there is a specific distance between two mold halves in the maximum open position of a mold closing unit of a particular injection molding machine, and the user inputs a first step in which the mold halves are not completely closed to allow injection compression molding (i.e., to allow a gap to remain in which plastics can be injected prior to completely closing the molding unit), the user would not then, in the next step, be able to input a larger distance than the distance found in the maximum open position. This inability to input a larger distance is only possible if the data processing unit is consistently checking to see what is possible with the particular machine given the machine itself and the input possibilities. In other words, the injection molding machine is operated along a preset sequence that is checked with the machine during the operator input and at the same time the hierarchical levels are adjusted accordingly. As such, there is, all the time, a continuous feedback between the injection molding machine and the software such that the injection molding machine is tied to the software and is not software *per se*.

Similarly, claim 25 is directed to a data carrier that includes a program for the accomplishment of the method of claim 1. In this regard, the data carrier is necessarily part of a method that is tied to an injection molding machine and, as such, the data carrier cannot simply be regarded as a "form of energy."

In light of the foregoing, Applicant thus submits that claims 15-25 are directed to statutory subject matter.

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Having fully responded to the initial objections and rejections set forth in the Office Action dated October 5, 2009, Applicant respectfully requests allowance of all claims now pending in the present application.

Respectfully submitted,

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